

REMARKS

In the Office Action mailed October 21, 2004, the Examiner rejected claims 1-3, 5-6, 8-9, and 12-13 under the doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 5 of U.S. Patent No. 6,722,197 (hereafter Knowles). Further, the Examiner rejected claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,393,913 (hereafter Dyck). In addition, the Examiner rejected claims 1, 5, 8, and 12 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,230,563 (hereafter Clark), in view of Dyck. Lastly, the Examiner rejected 2-3, 6, 9, and 13 under 35 U.S.C. § 103(a) as being unpatentable over Clark.

Claim Rejections under Obviousness-type Double Patenting

The Examiner rejected claims 1-3, 5-6, 8-9, and 12-13 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 5 of Knowles. Applicants have amended claims 1 and 5 so as to add a new limitation that is not found in the cited Knowles claims. Because claims 2, 3, and 6 are dependent upon claims 1 and 5, claims 2, 3, and 6 also contain this new limitation as well.

Because Applicants have added a new limitation to claims 1 and 5, Applicants respectfully requests the removal of the obviousness-type double patenting rejection to claims 1-3, and 5-6.

The Examiner has rejected pending claims 8-9 and 12-13 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Knowles. Applicants acknowledge this rejection and will consider filing a terminal disclaimer once the claims have otherwise been found allowable.

Claim Rejections under 35 U.S.C. § 102(e)

The Examiner rejected claims 1 and 5 under 35 U.S.C. § 102(e) as being anticipated by Dyck.

Under M.P.E.P. § 2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Applicants have amended claims 1 and 5 and respectfully submit that these claims as amended are patentably distinct from the Dyck patent because Dyck does not disclose or suggest each and every element of any of these claims.

In amended claims 1 and 5, Applicants recite the use of at least three support arms flexibly coupling both the first and second proof masses to the substrate. The support arms are coupled in such a way “to allow a greater degree of freedom of motion of proof masses 12 and 14 along an axis of oscillation than in any other direction in the plane parallel to substrate 10, thus ensuring that proof masses 12 and 14 oscillate along the axis of oscillation shown.” See Specification, pg. 5, line 32 – pg. 6, line 2. In contrast, Fig. 1 of Dyck depicts only first proof mass 14 being coupled to the substrate in at least three corners, while the second proof mass 20 is coupled directly to the first proof mass, not to the substrate. In addition, Fig. 6 of Dyck depicts only first proof mass 14 being coupled to the substrate in at least three corners, while second proof mass 20 is coupled to the substrate at only two corners. As such, Dyck fails to recite the use of at least three support arms flexibly coupling both the first and second proof masses to the substrate.

Because Dyck does not show or suggest each and every element in amended claims 1 and 5, Applicants submit that Dyck does not anticipate claims 1 and 5, and thus claims 1 and 5 are in a condition for allowance.

Claim Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 1, 5, 8, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Clark, in view of Dyck.

The Examiner cited Fig. 9 in Clark as disclosing a first proof mass (130a) and a second proof mass (131a), each having a plurality of support arms (124a, 125a, 126a, 127a) flexibly coupling the masses to the substrate (101b). The Examiner admitted that although Clark discloses a lever, it does not specifically disclose at least one spring element connecting the first proof mass to the second proof mass. The Examiner cited Dyck as disclosing a plurality of springs, and claimed it would have been obvious to utilize in Clark the spring element of Dyck because the springs can bend in a plane parallel to the substrate.

Applicants submit that Clark teaches away from using spring elements to connect the two proof-masses. Hence, it would not have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Clark the spring element of Dyck.

Clark teaches a suspension system that holds two proof masses and allows for two modes of compliance, one being drive mode compliance, whereby the two proof masses move in the same plane and are 180 degrees out of phase with respect to each other, and the other mode of compliance is sense-mode, whereby the two proof masses move along the Y-axis in opposite directions. By driving the two masses differentially, Clark allows the measurement of a differential Coriolis acceleration. Col. 5, lines 39-41.

Clark achieves both these motions of the substrate by first driving the proof masses in an anti-phase motion (i.e. drive mode), then once this motion is in place, the structure responds to oscillating in an anti-phase motion, i.e. the sense-mode, whereby the

two proof masses are forced to move in opposite directions along the Y-axis by the rotating lever 128 (Fig. 6) and the beams 116 through 127 that connect the lever to the proof-masses.

Clark is able to achieve these separate and distinct motions by the various structures of beams set forth in Fig. 3 though 10. Common among all these structures, however, is that while in drive-mode, specific beams are deflected substantially, while the remaining beams stay relatively straight. See Fig. 5, where beams 104 through 111 deflect substantially in drive-mode, while the other beams remain relatively straight. When the structure is then driven into sense-mode compliance, the remaining beams are forced to deflect substantially, while the beams used to provide for the drive-mode oscillation remain unaffected. See Fig. 6, where sense-mode compliance is determined by deflection of beams 112-115, 116-119, and 124-127, with beams 112-115 being the dominant beams that are deflected.

Clark achieves these structures that allow for drive and sense mode simultaneously by specifically disclosing rigid beams. Clark specifically reiterates the requirement of using rigid beams because rigid beams will allow the suppression of unwanted responses to translational accelerations applied along the sense-axis. See Col. 5, lines 45-50, which discloses the use of “at least one stiff, pivoting beam . . . so that the two proof-masses are constrained to move in opposite directions along the sense-axis. This constraint suppresses unwanted responses to translational accelerations applied along the sense-axis, but does not affect desired responses to Coriolis accelerations.” Furthermore, these beams are compliant to bending, but relatively stiff to compression

and extension. Col. 5 lines 61-63. This requirement of being stiff to compression and extension is inapposite to a spring, which is designed to compress and extend.

Moreover, the motions of the proof-masses 130 and 131 are constrained to track the ends of the lever, and the levers are designed to reject common-mode displacement, whereby the ends of the lever move in the same direction. See Col. 6 lines 33-38. Rather, all of the rigid lever elements move in a rotational motion because the ends move in opposite directions. This rotational motion of the rigid lever elements is also inapposite to the motion of spring elements, because the ends of a spring move in the same direction, not rotationally.

Because Clark teaches away from using spring elements to connect the two proof masses, it would not have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Clark the spring element of Dyck.

In light of the above, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a) for claims 1, 5, 8, and 12.

Claim Rejections under 35 U.S.C. § 103(a)

The Examiner rejected 2-3, 6, 9, and 13 under 35 U.S.C. § 103(a) as being unpatentable over Clark.

For the reasons stated above, Applicants submit that Clark does not render the claimed invention obvious because Clark cannot reasonably be read to use spring elements. As such, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a) for claims 2-3, 6, 9, and 13.

CONCLUSION

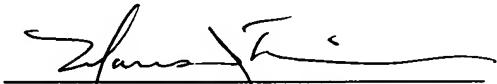
In light of the above amendments and remarks, Applicants submit that the present application is in condition for allowance and respectfully request notice to this effect. The Examiner is requested to contact Applicants' representative below if any questions or if he may be of assistance to the Examiner.

Respectfully submitted,

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